Wireless mini data logger

RMS Mini Logger

Advantages

- Saves up to 10,000 measured values
- Fail-safe thanks to internal battery and battery monitoring
- Battery life up to 2.5 years
- Conforms to FDA 21 CFR Part 11 / GAMP5
- ISM band 868 MHz / 915 MHz

Applications

- Environmental chambers
- Pharmaceutical industry
- Analog third-party devices
- Incubators

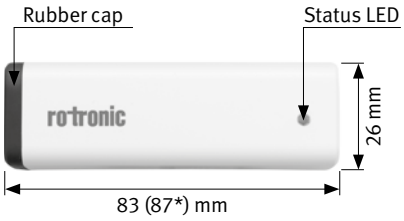
TECHNICAL INFORMATION

Compatible with

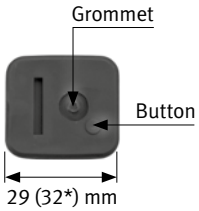
• RMS-GW-868:	Firmware V1.0
• RMS-GW-915:	Firmware V1.5
• Software V1.2:	RMS-MLOG-T10-868
• Software V1.2.1:	915 MHz devices
• Software V1.3 & RMS-GW V2.1:	RMS-MLOG-BT-XXX

Dimensions / Connections

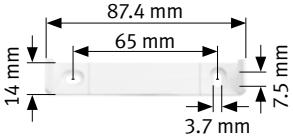
Top view



Rubber cap (front view)



Wall bracket



* *with wall bracket*

General specifications		
Device type	MS-MLOG-XXX-XXX RMS-MDI-XXX RMS-MADC-XXX-X	RMS-MLOG-BT-XXX RMS-MLOG-B-XXX
Memory size	10,000 measured values	13,000 data points
Range of application (electronics)	-30...85 °C / 0...100 %RH	-40...85 °C / 0...100 %RH
Battery life @23°C, 1 minute interval	2.2 years	2.5 years
IP protection class	IP65	IP30 (B), IP65 (BT)
Working range pressure	300...1100 hPa	
Storage conditions	-30...30 °C / 0...95 %RH	
Battery	1x RMS-BAT	
Measurement interval	10 s to 15 min (software dependant)	
Wireless specifications		
Wireless interface	ISM 868 MHz	ISM 915 MHz
Indoor wireless range	20...50 meters	15...25 meters
Conformity with standards		
FDA / GAMP directives	FDA 21 CFR Part 11 / GAMP5	
Housing / Mechanics		
Housing material	ABS	
Dimensions	83 x 29 x 29 mm	
Fire protection class	UL94-V2	

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TECHNICAL INFORMATION

	Type	Range / Accuracy
Temperature & humidity	RMS-MLOG-B-868 RMS-MLOG-B-915 	-40...85 °C (±0.5 °C @ 25 °C / ±1 °C @ 0...70 °C / ±3.5 °C @ rest of temperature range) / 0...100 %RH (±3 %RH @ 25 °C)
Temperature & barometric pressure	RMS-MLOG-BT-868 RMS-MLOG-BT-915 	-40...85 °C (±0.5°C @ 25 °C / ±1°C @ 0...70°C / ±3.5°C @ rest of temperature range) ±3hPa (0...65°C ; 950...1100 hPa)
Temperature	RMS-MLOG-T-868 RMS-MLOG-T-915 	-30...85 °C (±0.4 °C @ 25 °C) Details: see page 3

Temperature with external probe (NTC)

RMS-MLOG-T10-868
RMS-MLOG-T10-915 

Further NTC probes available in various lengths. Please contact Rotronic.

Accessories	Item no.	T10-0001	T10-0006	T10-0003 / 0013 / 0113	T10-0005
					
	Application	Cryotechnology	Freezers, dry ice	Standard	Freezers, dry ice
	Probe operating range	-196...-90 °C	-80...150 °C	-50...120 °C	-90...50 °C
	NTC calibration range	-200...-90 °C	-80...200 °C	-50...200 °C	-90...50 °C
	Dimensions / Housing	Ø 6 x 50 mm / stainless steel			
	Cable length	2 m	2 m / 4 m	2 m	2 m

Power input	RMS-MADC-868-V RMS-MADC-915-V (0...10 V) RMS-MADC-868-A RMS-MADC-915-A (0...20 mA) 	0...10 VDC (±0.1 V @ 25 °C) 0...20 mA or 4...20 mA (shunt 110 Ohm) ±0.2 mA @ 25 °C

Digital input

RMS-MDI-868
RMS-MDI-915 

Accessories	Item no.	DC-0001
		
	Application	Door contact / magnetic trigger
	Switch	Normally open
	Cable length	30 cm
	Mounting	M3 screws
	IP	IP65

Illumination	RMS-MLOG-LGT-868 RMS-MLOG-LGT-915 	The RMS-MLOG-LGT detects light, meaning that it is possible to monitor the difference between dark and light. The LUX measurement values are not precise and are only used for scaling. The device is not designed for an accurate LUX measurement. 

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TEMPERATURE ACCURACY

RMS-MLOG-T & T10 ACCURACY OVERVIEW

The RMS-MLOG-T10-XXX allows users to implement their own NTC sensor. It is possible to add the NTC nominal value and B constant within the RMS software. For NTC's from Rotronic, simply choose the NTC from the dropdown list (as of Software V1.2).

The RMS-MLOG-T10-XXX can be calibrated and adjusted (2 points) via the RMS software. When using external NTC's, please account for the accuracy of the RMS-MLOG electronics.

Accuracy overview

T10-0001*	
Accuracy between -196...-90 °C	±2.5 °C
T10-0002*	
Accuracy at 25 °C	±0.2 °C
Accuracy at -80...-30 °C	±1 °C
Accuracy at -30...40 °C	±0.5 °C
Accuracy at 40...70 °C	±1 °C
Accuracy at 70...200 °C	±3 °C
T10-0003* and T10-0004*	
Accuracy at 25 °C	±0.4 °C
Accuracy at -50...0 °C	±1 °C
Accuracy at 0...30 °C	±0.5 °C
Accuracy at 30...60 °C	±1 °C
Accuracy at 60...90 °C	±1.5 °C
Accuracy at 90...200 °C	±3.2 °C
T10-0005*	
Accuracy at -80...50 °C	±1 °C
Accuracy at -90...-80 °C	±1.5 °C
RMS-MLOG-T-XXX	
Accuracy at 25 °C	±0.4 °C
Accuracy at -30...0 °C	±1.3 °C
Accuracy at 0...40 °C	±1 °C
Accuracy at 40...85 °C	±1.5 °C
RMS-MLOG-T10-XXX electronic measurement accuracy	
Accuracy at 25 °C	±0.1 °C
Accuracy at -200...-40 °C	±0.4 °C
Accuracy at -40...150 °C	±0.3 °C
Accuracy at 150...200 °C	±0.6 °C
RMS-MLOG-T10-XXX electronic temperature accuracy	
Accuracy at 25 °C	±0.0 °C
Accuracy at -30...85 °C	±0.3 °C

To calculate the total accuracy of the RMS-MLOG-T10-XXX, it is necessary to add all variables together.

* NTC accuracy

Examples at various temperatures

Use of the T10-0002 at 25 °C and the RMS-MLOG-T10-XXX at 25 °C	
T10-0002 accuracy at 25 °C	±0.2 °C
RMS-MLOG-T10-XXX electronic measurement accuracy at 25 °C	±0.1 °C
RMS-MLOG-T10-XXX electronic temperature accuracy at 25 °C	±0.0 °C
Total accuracy at 25 °C	±0.3 °C
Use of the T10-0001 at -196 °C and the RMS-MLOG-T10-XXX at 25 °C	
T10-0001 accuracy at -196 °C	±2.5 °C
RMS-MLOG-T10-XXX electronic measurement accuracy at -196 °C	±0.4 °C
RMS-MLOG-T10-XXX electronic temperature accuracy at 25 °C	±0.0 °C
Total accuracy with the sensor at -196 °C and the logger at 25 °C	±2.9 °C
Use of the T10-0003 at 35 °C and the RMS-MLOG-T10-XXX at 35 °C	
T10-0003 accuracy at 35 °C	±1 °C
RMS-MLOG-T10-XXX electronic measurement accuracy at 35 °C	±0.3 °C
RMS-MLOG-T10-XXX electronic temperature accuracy at 35 °C	±0.3 °C
Total accuracy at 35 °C	±1.6 °C
Use of the T10-0005 at -85 °C and the RMS-MLOG-T10-XXX at 25 °C	
T10-0005 accuracy at -85 °C	±1.5 °C
RMS-MLOG-T10-XXX electronic measurement accuracy at -85 °C	±0.4 °C
RMS-MLOG-T10-XXX electronic temperature accuracy at 25 °C	±0.0 °C
Total accuracy with the sensor at -85 °C and the logger at 25 °C	±1.9 °C

Improvement in accuracy:

When using the data logger with the internal NTC or any of the NTC's provided by Rotronic, it is possible to carry out a 1 or 2 point adjustment in order to improve the measurement accuracy.

1 point adjustment:

- Adjustment range: -25...125 °C
- Accuracy: ±0.3 °C
- Accuracy range: adjustment point ±10 °C

2 point adjustment:

- Adjustment range: -25...125 °C
- Accuracy: ±0.3 °C
- Maximum span of the 2 adjustment points: 80 °C

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